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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/748,939	12/30/2003	Markus A. Wicki	59457US002	1916
32692 7590 01/08/2007 3M INNOVATIVE PROPERTIES COMPANY PO BOX 33427 ST. PAUL, MN 55133-3427			EXAMINER OH, TAYLOR V	
			ART UNIT	PAPER NUMBER
			1625	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/08/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/748,939	<b>Applicant(s)</b> WICKI ET AL.	
	<b>Examiner</b> Taylor Victor Oh	<b>Art Unit</b> 1625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 16 October 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,2,4,5,7,8,10,11,13-17 and 20-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-2,4-5, 7-8, 10-11, 13-17, 20-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**Final Rejection**

**The Status of Claims**

Claims 1-2, 4-5, 7-8, 10-11, 13-17, and 20-30 are pending.

Claims 1-2, 4-5, 7-8, 10-11, 13-17, and 20-30 are rejected.

**Claim Objections**

Claims 1, 27 and 30 are objected to because of the following informalities:

In Claim 1, the new phrase "said process being conducted without a continuous extraction step" is introduced after the phrase "than in water".

In claims 27 and 30, the new clause "wherein the process does not comprise a continuous extraction step" is introduced after the terms "to yield the monoester".

However, the newly introduced phrase and clause "said process being conducted without a continuous extraction step" and "wherein the process does not comprise a continuous extraction step" are not present and shown in the original specification. A close inspection of the original claims and specification do not provide antecedent basis for the proposed changes. New matter can not be introduced into specification at any time during the prosecution, unless there is a supporting description that would support the proposed changes. Applicant is required to cancel the new matter in the reply to this Office Action.

**Claim Rejections - 35 USC § 112**

1. Applicants' argument filed 10/16/06 have been fully considered but they are not persuasive.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The rejection of Claim 23 under 35 U.S.C. 112, first paragraph, has been maintained due to applicants' failure to modify the claim.

Claims 1-2, 4-5, 7-8, 10-11, 13-17, and 20-30 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In claims 1, 27 and 30, the new phrases "said process being conducted without a continuous extraction step" and "wherein the process does not comprise a continuous extraction step" are recited. These phrases have not been described in the original specification (see page 2, line 21-33; page 3, lines 19-24). Therefore, the addition of the new phrases "said process being conducted without a continuous extraction step" and "wherein the process does not comprise a continuous extraction step" to the claims does not provide antecedent basis for

Art Unit: 1625

the proposed changes. The negative proviso with this limitation lacks a literal description in the original specification. New matter can not be introduced into specification at any time during the prosecution, unless there is a supporting description that would support the proposed changes.

Applicant is required to cancel the new matter in the reply to this Office Action. Even a negative limitation requires description, *Ex Parte Grasselli*, 231 USPQ 393.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

The rejection of Claims 1, 6, 9, and 10 under 35 U.S.C. 112, second paragraph, has been withdrawn due to the modification and cancellation of the claims.

However, the newly added claim 26 has another issue.

In claim 26, the phrase "an insect mating disruption product comprising" is recited. This is vague and indefinite because the expression of the term "comprising" would mean that there were additional components besides the insect mating disruption product. The examiner recommends to change from "comprising" to "having".

#### **Claim Rejections - 35 USC 103**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 1625

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

*The rejection of Claims 1-2, 4-5, 7-8, 10-11, 13-17, and 20-30 under 35 U.S.C. 103(a) as being unpatentable over Babler et al (Tetrahedron Letters, 1979, no. 22, p. 1971-74)).*

The rejection of Claims 1-2, 4-5, 7-8, 10-11, 13-17, and 20-30 under 35 U.S.C. 103(a) as being unpatentable over Babler et al (Tetrahedron Letters, 1979, no. 22, p. 1971-74) has been maintained with a reason of record on 7/11/06.

Applicants' Argument

Applicants argue the following issues:

- a. Applicants do not understand why claim 23 is being rejected under 35 USC 112 ,first paragraph since the examiner has stated that the specification is enabled for acid catalysts;
- b. Babler et al has failed to teach the use of a biphasic solvent system comprising water and at least one aprotic solvent without a continuous extraction step.

Applicants' arguments have been noted, but the arguments are not persuasive.

Art Unit: 1625

First, regarding the first argument, the Examiner has noted applicants' arguments. However, the issue is not related to the enablement, but to the scope of the enablement for all kinds of acid catalysts for the process. The instant claimed invention regarding the acidic catalyst is highly unpredictable since one skilled in the art would recognize that any acidic catalyst would not work on the claimed process in the same way as those catalysts such as sulfuric acid, nitric acid, hydrochloric acid, hydrobromic acid, hydroiodic acid, trifluoroacetic acid. For example, Gardener (US 3,878,261) discloses the super acid catalyst of  $\text{SbF}_5$  and  $\text{CF}_3\text{SO}_3\text{H}$ , which is certainly belonged to the category of the so-called acidic catalyst; this kind of the super acidic catalyst is suitable for isomerizing paraffins containing 4 to 12 carbons in a feed stream (see abstract page) unlike the claimed process; similarly, another super acid,  $\text{FSO}_3\text{H-SbF}_6$  is applicable for forming the carbocation, such as tert-butyl cation from isobutane as disclosed in the text book, March's Advanced Organic Chemistry (see p. 219, the fourth paragraph). If the same super acid  $\text{FSO}_3\text{H-SbF}_6$  disclosed in March's Advanced Organic Chemistry were applied to the claimed process, the affect or impact of the acidic catalyst on the reaction process would have been unpredictable and completely different from the claimed process. This is because the super acid  $\text{FSO}_3\text{H-SbF}_6$  has a high likelihood of removing hydrogen ions from either of the reactants, the diol and the carboxylic acid, instead of helping them to form the desired monoester product, thereby detrimentally affecting the yield of the desired final product.

Therefore, unlike applicants' argument, the right choice of the acidic catalyst is essential in the esterification process. Thus, applicants' argument is not persuasive.

Art Unit: 1625

Second, regarding the second argument, the Examiner has noted applicants' arguments. However, Babler et al expressly teaches the selective esterification method of treating diol with a solution of acetic acid in the presence of sulfuric acid at a room temperature to produce the monoacetate (see page 1971, lines 17-19) free from the corresponding diacetate derivatives, which is done by continuous extraction with a suitable aprotic solvent (see page 1973, lines 1-3), which does form the biphasic solvent system containing benzene and water as described below (see page 1972, table 1):

Starting Diol <sup>a</sup>	Aqueous Reaction Mixture (ml of H <sub>2</sub> O: ml of glacial acetic acid: ml of conc. H <sub>2</sub> SO <sub>4</sub> )	Time <sup>b</sup>	Solvent Used for Extraction <sup>c</sup>	Product Distribution <sup>d</sup>		
				Diol	Monoacetate <sup>e</sup>	Diacetate
15 mmol of 1,10-decane-diol	155:75:0.25	36 hrs	5:1 (v/v) cyclohexane: CCl <sub>4</sub>	30 <sup>f</sup>	60	1
15 mmol of 1,10-decane-diol	120:90:0.25	36 hrs	1:1 (v/v) hexane: cyclohexane	22 <sup>f</sup>	75	3
15 mmol of ethylene glycol	160:80:0.50	1 wk	benzene	0	94	6
17 mmol of 1,4-cyclohexanediol <sup>g</sup>	180:45:4.0	4 days	benzene	14 <sup>h</sup>	85 <sup>i</sup>	1
7 mmol of 1,12-dodecane-diol	90:150:0.25	30 hrs	cyclohexane	29 <sup>f</sup>	66	5
13.7 mmol of 1,8-octane-diol	200:25:4.0	40 hrs	hexane	2	94	4

acid. This mixture was subsequently extracted continuously with the specified nonpolar solvent. <sup>b</sup>The time represents that required for essentially quantitative removal of the starting diol (most of which has been converted to the corresponding monoacetate) from the aqueous reaction mixture using the specific reaction conditions listed in the table. This time should be able to be reduced substantially by increasing the amount of sulfuric acid catalyst, heating the aqueous reaction mixture to a moderate temperature (e.g., 50°C), varying the ratio of water-acetic acid (up to a certain point), and using a more efficient extractor. <sup>c</sup>The solvents utilized in the above reactions do not necessarily represent the optimum one for each particular system. The latter can be ascertained only after extensive development of this process. Suitable nonpolar solvents include alkanes, cycloalkanes, aromatic hydrocarbons, halide derivatives of hydrocarbons, or mixtures thereof. <sup>d</sup>The product mixture was isolated by cooling the solvent used for extraction to room temperature. Any unreacted diol present in the product mixture often precipitated out of the nonpolar solvent at this stage and could be recovered by simple filtration. After drying the filtrate over anhydrous K<sub>2</sub>CO<sub>3</sub> and subsequent removal of the extraction solvent under reduced pressure, product ratios were determined by VPC analysis (6'x1/8" SE-30 column). Retention times: diester > monoacetate

(see page 1972, a lower part of paragraph).

To illustrate the utility of this selective esterification process, 1,8-octanediol monoacetate<sup>8</sup> (2, n=6) was converted in two steps to the sex pheromone of the oriental fruit moth,<sup>9</sup> a pest of peach orchards. Oxidation of the unprotected hydroxyl group using pyridinium chlorochromate<sup>10</sup> afforded the previously reported<sup>11</sup> 8-acetoxyoctanal in 86% yield. Subsequent treatment of the latter aldehyde with the ylid derived from *n*-butyltriphenylphosphonium bromide<sup>12</sup> under "salt-free" conditions<sup>13</sup> gave 2-8-dodecenyl acetate,<sup>14</sup> > 98% pure by VPC analysis,<sup>15</sup> in 45% yield.

(see

page 1973, a middle paragraph).

Furthermore, the addition of the new phrase "without a continuous extraction step" to the claims does not provide antecedent basis for the proposed changes. The negative proviso with this limitation lacks a literal description in the original specification. New matter can not be introduced into specification at any time during the prosecution, unless there is a supporting description that would support the proposed changes. Applicant is required to cancel the new matter in the reply to this Office Action. Therefore, applicants argument is not persuasive.

### *Conclusion*

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period

Application/Control Number: 10/748,939


Page 9

Art Unit: 1625

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

  
Taylor Victor Oh, MSD, LAC

Primary Examiner

Art Unit : 1625

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1/3/07